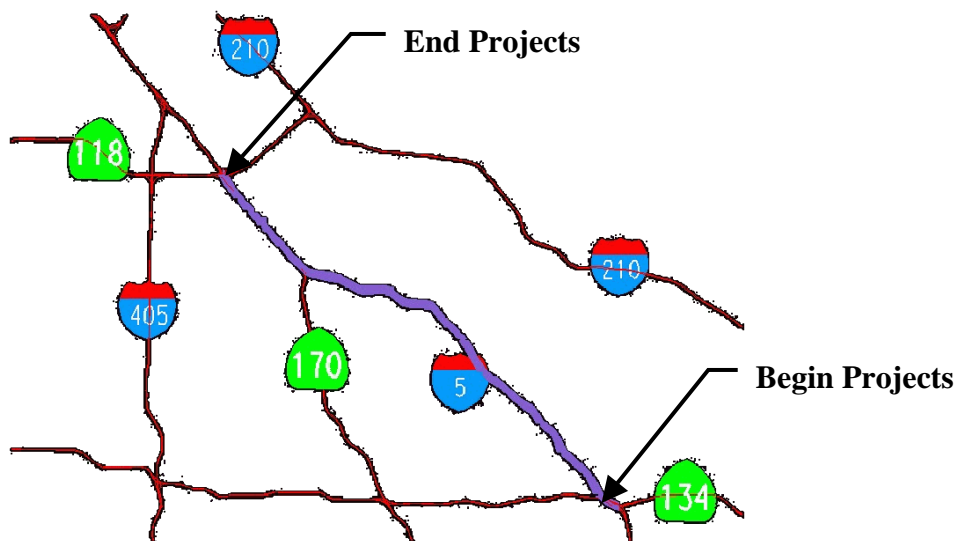


Qualitative PM_{2.5} and PM₁₀ Hot-Spot Analysis

CONSTRUCT HIGH OCCUPANCY VEHICLE (HOV) LANES



Interstate 5, from PM 26.7 to PM 39.4
IN LOS ANGELES COUNTY, CALIFORNIA
FROM State Route 134
TO State Route 118

Caltrans EA Nos.: 07-12184, 07-12183, 07-12182, 07-12181, 07-12190
Project ID NOs.: LAO00358, LAO00357

Prepared by

**California Department of Transportation
District 7**

Division of Planning, Public Transportation, and Local Assistance
Office of Environmental Engineering and Corridor Studies
100 South Main Street
Los Angeles, CA 90012

January 2008

Introduction

The United States Environmental Protection Agency (EPA) promulgated a National Ambient Air Quality Standard (NAAQS) for PM_{2.5} on July 18, 1997, along with a revised standard for ozone. The EPA then published their final rule on PM_{2.5} designations and classifications in the Federal Register on January 5, 2005, and established areas designated as nonattainment, unclassifiable or attainment/classifiable. The EPA again published a final rule on March 10, 2006 (became effective as of April 5, 2006) that supercedes the FHWA September 21, 2001 “Guidance for Qualitative Project-Level Hot-Spot Analysis in PM₁₀ Nonattainment and Maintenance Areas,” and establishes conformity criteria and procedures for transportation projects to determine their impacts on ambient PM_{2.5} and PM₁₀ levels in nonattainment and maintenance areas (71 FR 12468). The March 10, 2006 final rule requires a qualitative PM_{2.5} and PM₁₀ hot-spot analysis to be completed for a project of air quality concern (POAQC). The final rule defines the POAQC that requires a hot-spot analysis in 40CFR93.123(b)(1) as:

- (i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
- (ii) Projects affecting intersections that are at Level-of-Service (LOS) D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
- (iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
- (iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
- (v) Projects in or affecting locations, areas, or categories of sites which are identified in the PM_{2.5} and PM₁₀ applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The projects under study in this Qualitative PM_{2.5} and PM₁₀ Hot-Spot analysis (Analysis) propose to construct a high occupancy vehicle (HOV) lane in each direction of travel along the Interstate 5 (I-5) approximately from its junction with State Route 134 (SR-134) at PM 26.7 to its junction with SR-118 at PM 39.4. Based on current traffic data, the I-5 corridor within the limits of these projects are projected to have a significant number of diesel vehicles; and therefore these projects are considered to be a POAQC as described in 40CFR93.123(b)(1)(i) and require this Analysis.

This Analysis has been prepared according to the procedures and methodology provided in the “Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas” jointly published by EPA and FHWA in March 2006 (March 2006 Guidance).

Project Description and Location

This I-5 corridor within the project limits is commonly referred to as the Golden State Freeway and is a major urban freeway that is used for international, interstate, intraregional, travel, and goods movement.

This I-5 corridor passes through three cities: Los Angeles, Burbank, and Glendale. Within the city limits of Los Angeles, the corridor passes through three smaller communities: Sun Valley, Arleta, and Pacoima. The formation and subsequent growth of the corridor cities and communities have been shaped by their locations within the San Fernando Valley and their proximity to a number of regional freeway and railroad corridors. For the most part, these communities are older and substantially urbanized; where existing development and land use patterns have been in place for many years. The I-5 corridor land use pattern is principally residential. It does, however, contain scattered large-scale and regional commercial uses as well as pockets of industrial developments.

In Glendale, a mix of low and medium density residential land uses border the southbound side of the freeway. A mix of light and restricted industrial land uses with a small pocket of low and medium residential border the northbound side of the freeway.

In Burbank, the southbound side of the freeway is almost entirely zoned for general manufacturing with two small pockets of mixed multiple family medium density and single family low density. The northbound side of the freeway is bordered by a mix of general manufacturing, city center commercial, shopping center, single family low density and low, medium, and high density multiple family residential.

The portion of the projects in the city of Los Angeles traverses the communities of Sun Valley, Arleta, and Pacoima. The portion in Sun Valley is a mix of very low to low density residential with a pocket of limited and light industrial land uses. The portion in Arleta and Pacoima is bordered by low and very low density residential.

This Analysis encompasses five projects proposed along the I-5 corridor that are all currently in design. An Initial Study/Environmental Assessment (IS/EA) leading to a Negative Declaration/Finding of No Significant Impact (ND/FONSI) was prepared by the Department for four of the five projects (EAs: 12181, 12183, 12184, and 12190); and was approved by the FHWA in December 2000. Another IS/EA leading to a Mitigated Negative Declaration/FONSI (MND/FONSI) was prepared by the Department for EA 12182; and approved by the FHWA in June 2002. Project limits and EA number for each of the five projects are summarized below and Figure 1 illustrates the limits of these projects along the I-5 corridor. All figures, including Figures 1 through 7, are included in the attachment.

- EA 12181: PM 31.6 to 36.4, from just north of Buena Vista Street to SR-170;
- EA 12182: PM 30.0 to 31.6, from just south of Empire Avenue to just north of Buena Vista Street;
- EA 12183: PM 29.4 to 30.0, from Magnolia Boulevard to just south of Empire Avenue;
- EA 12184: PM 26.7 to 29.4, from SR-134 to Magnolia Boulevard; and
- EA 12190: PM 36.4 to 39.4, from SR-170 to SR-118.

The projects collectively propose to improve traffic flow by adding one high occupancy vehicle (HOV) lane in each direction along I-5 between SR-134 and SR-118; and to improve several interchanges within the limits by modifying access and/or adding auxiliary lanes. All five projects are currently in design phase with target dates to advertise and commence construction in 2009 and to complete construction by 2011 or 2012. Traffic data are projected to 2012 and 2030 to demonstrate fully developed traffic conditions following the opening of completed facilities in 2012 as well as to consider the full time frame of current transportation plans in the region.

The projects are identified in the 2004 Regional Transportation Plan (RTP as amended in June 2007) and in the 2006 Regional Transportation Improvement Program (2006 RTIP) as LA000358 (inclusive of project EAs 12181, 12182, 12183, and 12184) and LA000357 (inclusive of project EA 12190). Both of LA000358 and LA000357 are identified as Transportation Control Measure (TCM) projects and their timely implementation is a crucial element in reduction of air pollutant emissions from roadway transportation sources.

PM_{2.5} and PM₁₀ Hot-Spot Analysis Methodology

The projects are located within the South Coast Air Basin (SCAB) that is designated as a federal nonattainment area for PM_{2.5} and PM₁₀. The projects are considered as POAQC as discussed above; and therefore, a PM_{2.5} and PM₁₀ qualitative hot-spot analysis is deemed necessary to satisfactorily meet the conformity requirements in accordance with the March 10, 2006 final rule.

A hot-spot analysis is defined in the 40CFR 93.101 as an estimation of likely future localized pollutant concentrations and a comparison of those concentrations to the relevant air quality standards. A project-level hot-spot analysis assesses the air quality impacts on a scale smaller than an entire nonattainment or maintenance area such as a congested freeway corridor. Such an analysis is a means of demonstrating that a transportation project meets Clean Air Act (CAA) conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts.

CAA Section 176(c)(1)(B) is the statutory criterion that must be met by all projects in nonattainment and maintenance areas that are subject to transportation conformity. Section 176(c)(1)(B) states that federally supported transportation projects must not "cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area."

Types of Emissions Considered

In accordance with the March 2006 Guidance, this Analysis will be based on directly emitted PM_{2.5} or PM₁₀ emissions and will consider tailpipe, brake wear, and tire wear PM_{2.5} or PM₁₀ emissions. PM_{2.5} and PM₁₀ precursors and secondary particles are not considered in this Analysis; but they are considered as part of the regional emission analysis prepared for the conforming RTP and RTIP

Vehicles cause dust from paved and unpaved roads to be re-entrained, or re-suspended, in the atmosphere. According to the March 2006 final rule, road dust emissions are only to be considered in PM_{2.5} hot-spot analyses if the EPA or the state air agency has made a finding that such emissions are a significant contributor to the PM_{2.5} air quality problem (40CFR93.102(b)(3)). The South Coast Air Quality Management District (SCAQMD) has prepared and adopted in June 2007, a Final 2007 Air Quality Management Plan (Final 2007 AQMP) in which the paved road dust ranks high among the top ten categories of directly emitted PM_{2.5} in the SCAB. The California Air Resources Board (CARB) has incorporated the adopted 2007 AQMP for the SCAB as part of their State Implementation Plan (SIP) for PM_{2.5} and has submitted to EPA for approval. In anticipation of the EPA action on the PM_{2.5} SIP, the re-entrained PM_{2.5} road dust has been considered in this Analysis as well as the re-entrained PM₁₀ road dust that has been required in all conformity analyses.

According to the project schedules, the construction will not last more than 5 years, and construction-related emissions may be considered temporary; therefore, any construction-related PM_{2.5} and PM₁₀ emissions due to these projects will not be included in this Analysis. The construction of these projects will comply with the SCAQMD Fugitive Dust Rules for any fugitive dusts emitted during the construction of this project. Excavation, transportation, placement, and handling of excavated soils will result in no visible dust migration. A water truck or tank will be available within the project limits at all times to suppress and control the migration of fugitive dusts from earthwork operations. The project will comply with any state, federal, and local rules and regulations developed as a result of implementing control measures proposed as part of their respective SIPs.

National Ambient Air Quality Standard

Nonattainment and maintenance areas are required to attain and maintain two standards for PM_{2.5} as follows:

- 24-hour standard: 65 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)
- Annual standard: 15 $\mu\text{g}/\text{m}^3$.

Although the EPA has recently reduced the PM_{2.5} 24-hour standard from 65 to 35 $\mu\text{g}/\text{m}^3$ based on the 2004–2006 monitored data with an effective date of December 2006, this Analysis will consider the 1997 PM_{2.5} standard noted above (65 $\mu\text{g}/\text{m}^3$) because this is the standard upon which the current PM_{2.5} nonattainment designations were based. New area designations based on the new PM_{2.5} standard of 35 $\mu\text{g}/\text{m}^3$ are anticipated to become effective early 2010. This Analysis will consider both 24-hour and annual standards for PM_{2.5} as noted above.

The 24-hour standard is based on a 3-year average of the 98th percentile of 24-hour PM_{2.5} concentrations; and, the current annual standard is based on a 3-year average of annual mean PM_{2.5} concentrations.

PM₁₀ nonattainment and maintenance areas are required to attain and maintain two standards as well:

- 24-hour standard: $150 \mu\text{g}/\text{m}^3$
- Annual standard: $50 \mu\text{g}/\text{m}^3$, revoked.

The 24-hour PM_{10} standard is attained when the average number of exceedances in the past three calendar years is less than or equal to 1.0. An exceedance occurs when a 24-hour concentration of $155 \mu\text{g}/\text{m}^3$ or greater is measured at a site. The annual PM_{10} standard is attained if the average of the annual arithmetic means for the past three calendar years is less than or equal to $50 \mu\text{g}/\text{m}^3$. The annual standard for PM_{10} has been revoked due to lack of evidence linking health problems to long-term exposure to coarse particle pollutions. Thus, this Analysis will only consider the 24-hour standard for PM_{10} .

Climate and Meteorology of the South Coast Air Basin

The climate in and around the project area, as with all of Southern California, is controlled largely by the strength and position of the subtropical high-pressure cell over the Pacific Ocean. It maintains moderate temperatures and comfortable humidity, and limits precipitation to a few storms during the winter "wet" season. Temperatures are normally mild, except in the summer months, which commonly bring substantially higher temperatures. In all portions of the SCAB, temperatures well above 100 degrees Fahrenheit have been recorded in recent years. The annual average temperature in the SCAB where the projects are proposed is approximately 64 degrees Fahrenheit.

Winds in the project area are usually driven by the dominant land/sea breeze circulation system. Regional wind patterns are dominated by daytime onshore sea breezes. At night the wind generally slows and reverses direction traveling towards the sea. Wind direction will be altered by local canyons, with wind tending to flow parallel to the canyons. During the transition period from one wind pattern to another, the dominant wind direction rotates into the south and causes a minor wind direction maximum from the south. The frequency of calm winds (less than 2 miles per hour) is less than 10 percent. Therefore, there is little stagnation in the project vicinity, especially during busy daytime traffic hours.

Southern California frequently has temperature inversions that inhibit the dispersion of pollutants. Inversions may be either ground based or elevated. Ground based inversions, sometimes referred to as radiation inversions, are most severe during clear, cold, early winter mornings. Under conditions of a ground-based inversion, very little mixing or turbulence occurs, and high concentrations of primary pollutants may occur local to major roadways. Elevated inversions can be generated by a variety of meteorological phenomena. Elevated inversions act as a lid or upper boundary and restrict vertical mixing. Below the elevated inversion, dispersion is not restricted. Mixing heights for elevated inversions are lower in the summer and more persistent. This low summer inversion puts a lid over the SCAB and is responsible for the high levels of ozone observed during summer months in the SCAB.

The 30-year average temperature, from 1971 to 2000, using data obtained from the Western Region Climate Center's San Fernando meteorological station (#047759) shows a wintertime low of 42.1 degrees Fahrenheit in December. The summertime high is averaged at 91.7 degrees

Fahrenheit in August. The rainfall season is from November to March with an annual average of 12.13 inches.

Ambient and Projected Concentration Data

Ambient PM_{2.5} and PM₁₀ concentration data were obtained from two air monitoring stations, Burbank and Los Angeles-North Main St. Stations; and were reviewed to establish the current ambient level within the project limits and to help establish future localized pollutant concentrations as affected by the proposed projects. The Los Angeles-North Main St. Station is located approximately 0.6 mile from the I-5 and approximately 7 miles southeast from the southernmost end of the proposed project. The Burbank Station is located approximately 0.4 miles west of the I-5 along the limits of the proposed projects. Figure 1 illustrates the proximity of these monitoring stations to the freeway and to the proposed projects.

The portions of I-5 by which these two monitoring stations are located currently carry the following roadway traffic volumes:

Table 1 Roadway Traffic in the Vicinity of the Air Quality Stations

Station	Total Vehicle AADT	2 + Axle AADT	Total % Truck
LA-Main Street Station (close to I - 5, PM 18.45 Jct. Rte 10)	238,000	17,541	7.37
Burbank Station (close to I - 5, PM 38.915 Lincoln Ave)	290,000	22,446	7.74
I-5 within the proposed project limits (from SR-134 to SR-118)	157,000 to 313,000	13,316 to 22,453	9.72 to 7.29

Source: Caltrans Traffic and Vehicle Data Systems Unit accessed in September 2007

As indicated in Table 1, portions of the proposed I-5 project limits, currently experience volumes comparable to those portions of I-5 where the monitoring stations are located. Percentages and volumes of trucks carried along the portions of I-5 adjacent to the monitoring stations are deemed comparable to those throughout the projects corridor as Table 1 indicates that the truck percentages and volumes adjacent to the monitoring stations fall within the ranges experienced throughout the proposed projects.

A review of readily available aerials indicate that the Los Angeles – North Main St. Station is located in an area with primarily industrial uses while the Burbank Station, just west of the project corridor, is located in an area primarily of commercial and pockets of residential uses. The land use pattern along the proposed project limits includes manufacturing, residential, commercial, and light to restricted industrial, as indicated in the ND/FONSI or MND/FONSI approved for the proposed projects in December 2000 and June 2002, respectively.

Based on the comparison of traffic volumes, land uses, and the proximity to the freeway, the ambient concentration data measured at those monitoring stations are deemed representative for comparison to the proposed project. Table 2 and 3 summarize ambient pollutant monitoring data

at the Los Angeles – North Main St. Station and the Burbank Station. Figures 2 and 3 illustrate the monitored concentrations at both Stations and compare them with the current and future respective standards.

Table 2 Ambient PM_{2.5} Monitoring Data

	2001	2002	2003	2004	2005	2006
Los Angeles-North Main St. AQ Station						
3-year average 24-hour 98th percentile	61.0	62.0	58.0	56.0	56.5	52.5
Exceeds federal 24-hour standard (65 µg/m ³)?	No	No	No	No	No	No
3-year national annual average	22.6	22.3	22.1	20.7	19.3	17.3
Exceeds federal annual standard (15 µg/m ³)?	Yes	Yes	Yes	Yes	Yes	Yes
Burbank Monitoring Station						
3-year average 24-hour 98th percentile	67.3	69.0	61.3	54.7	53.3	47.7
Exceeds federal 24-hour standard (65 µg/m ³)?	Yes	Yes	No	No	No	No
3-year national annual average	23.0	23.3	23.6	21.7	19.7	17.8
Exceeds federal annual standard (15 µg/m ³)?	Yes	Yes	Yes	Yes	Yes	Yes

Source: <http://www.epa.gov/air/data/monvals.html?st~CA~California> accessed on 9/5/2007.

Table 3 Ambient PM₁₀ Monitoring Data

	2001	2002	2003	2004	2005	2006
Los Angeles-North Main St. AQ Station						
Maximum 24-hour concentration	97	65	81	72	70	59
Exceeds federal 24-hr standard (150 µg/m ³)?	No	No	No	No	No	No
Burbank Monitoring Station						
Maximum 24-hour concentration	86	71	81	74	92	71
Exceeds federal 24-hr standard (150 µg/m ³)?	No	No	No	No	No	No

Source: <http://www.epa.gov/air/data/monvals.html?st~CA~California> accessed on 9/5/2007.

The monitored data indicate that both stations have met the federal 24-hour PM_{2.5} standard (65 µg/m³) over the last six years except in 2001 and 2002 when the Burbank Station had experienced concentrations higher than the federal 24-hour PM_{2.5} standard. The Burbank Station, however, has shown a constant decrease in the average 24-hour PM_{2.5} concentrations; and has not exceeded the federal standard since 2003. Annual average PM_{2.5} concentrations monitored at both stations all exceeded the federal annual PM_{2.5} standard between 2001 and 2006. However, as clearly illustrated in the 24-hour monitored concentrations as well, the annual average concentrations monitored at both stations also exhibit a constant decline over the years except in 2002 and 2003

when slight increase was monitored at the Burbank Station. The monitored PM_{2.5} concentrations as well as the current and future federal PM_{2.5} standards are illustrated in Figure 2.

The monitored PM₁₀ concentrations at both stations indicate that the federal 24-hour standard has not been exceeded in the last 6 years as illustrated in Figure 3. Furthermore, the maximum 24-hour concentrations monitored at the Los Angeles – North Main St. Station indicate a declining trend in the last six years. At the Burbank Station, however, the maximum 24-hour concentrations generally exhibit a constant decrease although not as stabilized as that shown at the Los Angeles – North Main St. Station. A comparison of the monitored PM₁₀ concentrations with the respective federal standards is illustrated in Figure 3. Due to the revocation, the federal annual average standard will not be considered in this Analysis; however, as indicated in Figure 3, they are below the revoked standard and do exhibit a declining trend as well.

These monitored concentrations and their declining trends are consistent with discussions in the approved 2003 AQMP and the Final 2007 AQMP by the SCAQMD. The isopleth maps in the 2003 AQMP (Figure 4) and the Final 2007 AQMP (Figure 5) indicate that both of the Stations have not exceeded the federal annual PM₁₀ standard ($< 50 \mu\text{g}/\text{m}^3$) since at least 2001. Although Figure 6 indicates that both Stations experienced PM_{2.5} concentrations exceeding the federal annual average standard by more than $5 \mu\text{g}/\text{m}^3$ in 2001, the Final 2007 AQMP isopleth map in Figure 7 illustrates a drop in the annual PM_{2.5} concentrations at both Stations and indicates that both stations now exceed the federal annual average standard by less than $5 \mu\text{g}/\text{m}^3$ in 2005.

The declining trends in the future PM_{2.5} and PM₁₀ baseline concentrations are discussed in the Final 2007 AQMP and 2003 AQMP, respectively. The Final 2007 AQMP indicates that a reduction below the federal PM_{2.5} annual average standard will be achieved in Los Angeles (approximately $14 \mu\text{g}/\text{m}^3$) and Burbank ($13 \mu\text{g}/\text{m}^3$) by as early as 2015. The Final 2007 AQMP also indicates that the new federal PM_{2.5} 24-hour standard ($35 \mu\text{g}/\text{m}^3$) will be achieved at the Burbank Station by 2024 with a projected baseline concentration of $33 \mu\text{g}/\text{m}^3$; but not at the Los Angeles – Main St. Station (projected at $40 \mu\text{g}/\text{m}^3$). The current 1997 federal PM_{2.5} 24-hour standard of $65 \mu\text{g}/\text{m}^3$, nevertheless, is currently attained at both monitoring stations. As evidenced by the Final 2007 AQMP, a further decrease in the 24-hour and annual average concentrations is anticipated by the regional horizon year, 2030.

The 2003 AQMP addresses future PM₁₀ baseline concentrations and indicates that the federal PM₁₀ 24-hour standard will be attained by 2006, as the central Los Angeles will experience concentrations just above approximately $100 \mu\text{g}/\text{m}^3$ by 2006. A further decrease to below $100 \mu\text{g}/\text{m}^3$ is anticipated by 2010; and, as the trend indicates, the ambient concentrations are anticipated to further improve by 2030. It should be noted that the maximum 24-hour PM₁₀ concentrations in 2006 were monitored below the projections of the 2003 AQMP.

The SIP for PM₁₀ was submitted to EPA on January 9, 2004; and was determined to be adequate by EPA effective April 9, 2004 (69 FR 15325). The PM_{2.5} SIP has recently been submitted to the EPA; and an emission budget adequacy/inadequacy determination is anticipated in the near future.

Current Traffic Conditions

Existing average daily traffic volumes, truck percentage, and average daily truck volumes along the I-5 within the limits of the proposed projects are shown in Table 1. Future traffic data have been projected and are summarized in Tables 4 and 5. Table 1 indicates that the facility currently experiences truck volumes in a range of 13,316 to 22,453, or 9.72% to 7.29% of the total volume. In terms of traffic congestion experienced by motorists, the traffic analysis for this project described the facility as operating at LOS F, indicating that typical motorists would experience traffic congestion for more than 15 minutes but less than 1 hour during peak hours.

Traffic Changes Due to the Proposed Projects

The projects propose to widen freeway mainlines to add an HOV lane in each direction; increase the capacity of I-5; and modify interchanges with local streets. This type of projects improves freeway mainline and interchange operations by reducing traffic congestion and improving ingress/egress movements. Tables 4 and 5 below summarize average traffic volumes and speeds projected along the I-5 corridor within the project limits. Traffic projections were conducted for over 17 individual segments within the project limits; however, the future projections in Tables 4 and 5 are shown as averages over all the segments. According to Tables 4 and 5, the Build Alternative is anticipated to result in improvements in vehicle speeds along the I-5 corridor as well as in the surrounding areas due to the anticipated increase in capacity and improvement in operations.

Traffic and speed data on the I-5 corridor and the surrounding areas were considered for this Analysis and in calculating PM_{2.5} and PM₁₀ emissions, including PM_{2.5} and PM₁₀ re-entrained road dust. Vehicle miles traveled (VMTs) on arterials, secondary streets, and portions of neighboring freeways were considered to encompass I-210 to the north and east; I-405 to the west; and SR-134 to the south as summarized in Table 6. The summary in Table 6 indicates that the implementation of these projects helps reduce traveling on other surrounding freeways and arterials/secondary streets while an increase is anticipated in total VMTs along this I-5 corridor by 2012. This traffic redistribution effect continues in 2030, resulting in reduction of VMTs in the surrounding areas while encouraging and increasing traveling on the I-5 corridor.

Table 4 Average Daily Volumes and Speeds in 2012 within the proposed I-5 Corridor

	ADT		Average Daily Speed, MPH
	Total	Truck	
No-Build	218,128	19,376	42
Build	187,963 MF / 36,507 HOV	19,867	45

Table 5 Average Traffic Volumes and Speeds in 2030 within the proposed I-5 Corridor

	ADT		Average Daily Speed, MPH
	Total	Truck	
No-Build	248,018	21,845	39
Build	226,141 MF / 43,766 HOV	23,806	41

Table 6 Summary of Vehicle Miles Traveled for The I-5 Corridor and Surrounding Areas

	Surrounding Areas		Arterials			I-5 Corridor	
	Mixed Flow	HOV	Major	Primary	Secondary	Mixed Flow	HOV
2006 Existing	15,313,390	1,037,468	4,790,621	2,743,726	176,999	2,908,228	----
2012 No-Build	16,920,315	1,320,251	5,358,054	3,202,915	226,865	3,183,630	----
2012 Build	16,005,392	1,166,005	5,039,642	2,941,784	197,932	2,987,906	250,196
2030 No-Build	18,292,701	1,567,918	5,835,673	3,594,610	270,264	3,477,214	----
2030 Build	18,081,400	1,551,617	5,786,706	3,535,958	260,730	3,226,939	625,490

PM_{2.5} and PM₁₀ Emissions

ARB's latest emission model, EMFAC2007, was utilized in estimating future project-level PM_{2.5} and PM₁₀ emissions for the project alternatives, which are summarized in Tables 7 and 8 below. PM_{2.5} and PM₁₀ emissions have also been estimated for the existing traffic conditions as included in those tables.

Table 7 Existing and Future PM_{2.5} Emissions by Project Alternatives (lb/day)

	Existing	Opening, 2012	Horizon, 2030
No-Build	2,300	2,331	2,075
Build		2,149	2,071

Table 8 Existing and Future PM₁₀ Emissions by Project Alternatives (lb/day)

	Existing	Opening, 2012	Horizon, 2030
No-Build	3,301	3,408	3,221
Build		3,162	3,205

Re-entrained road dust was also estimated based on the existing and projected traffic data; and was computed using the emission factor equation provided in the Fifth Edition, Volume I of EPA's AP-42 document dated November 1, 2006. As indicated above, PM_{2.5}, as well as PM₁₀, re-entrained road dust has been considered in this Analysis in anticipation of the EPA action on the PM_{2.5} SIP submitted recently by the CARB.

As indicated in Table 6, the summary of VMTs indicate that the implementation of the projects will result in reduction and/or redistribution of traveling on the surrounding freeways as well as surface arterials and secondary streets with higher silt loading factors according to the EPA's AP-42. This traffic redistribution/reduction affects the overall VMTs and is anticipated to result in the overall reduction of PM_{2.5} and PM₁₀ re-entrained road dust emissions by 2012 and 2030 as indicated in Tables 9 and 10 below.

Table 9 PM_{2.5} Re-entrained Road Dust by Project Alternatives (lb/day)

	Existing	Opening, 2012	Horizon, 2030
No-Build	29	38	45
Build		33	43

Table 10 PM₁₀ Re-entrained Road Dust by Project Alternatives (lb/day)

	Existing	Opening, 2012	Horizon, 2030
No-Build	9,017	10,221	11,262
Build		9,585	11,205

This summary of PM_{2.5} and PM₁₀ emissions in Tables 7 through 10 indicate that the implementation of the projects would result in reduction of PM_{2.5} and PM₁₀ emissions when compared to the No-Build scenario. It should be noted that this reduction in the Build emissions has been resulted despite its overall increase in the truck and total volumes along the I-5 corridor within the limits of the projects. The State vehicle codes prohibit the use of an HOV lane by trucks with 3 or more axles and school buses; therefore, the addition of an HOV lane in the SB and NB direction would accommodate primarily gasoline-fueled light duty and alternative fueled

(typically CNG or LNG) transit vehicles. State and local transit fleet rules essentially prohibit the acquisition of diesel-powered transit vehicles for use in the SCAB.

CONCLUSIONS

Transportation conformity is required under CAA Section 176(c) to ensure that federally supported highway and transit project activities are consistent with the purpose of the SIP. Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant AAQS. As required by the March 10, 2006 final rule, this Analysis demonstrates that this project meets the CAA conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts as indicated below.

Historical meteorological and climatic data support that the regional and local meteorological and climatic conditions have been relatively consistent within the last 30 years and likely consistency is anticipated until the horizon year of 2030. In addition, no significant changes to the current general terrain and geographic locations of the project in relation to the coastal SCAB areas are anticipated.

Monitoring of PM_{2.5} emissions have only recently initiated and do not have a long trail of monitored data available; however, based on the recent data at two closest and representative PM_{2.5} monitoring stations, there is a declining trend of background PM_{2.5} concentrations within the project area. As discussed above, annual average PM_{2.5} concentrations in 2015 are projected at as low as 81% and 73% of their last available monitoring data at the Los Angeles – Main St. and Burbank Stations, respectively. The Final 2007 AQMP indicates that the 24-hour PM_{2.5} concentrations are anticipated below the 1997 federal 24-hour standard of 65 µg/m³. The maximum daily PM₁₀ concentrations detected at the Los Angeles – Main St. and Burbank Stations indicate that they are in attainment and are anticipated to decrease further by 2012 and 2030.

Federal regulations and the State's Diesel Risk Reduction Plan require future diesel vehicles to have substantially cleaner engines and to use fuels with lower sulfur contents. These federal and state requirements would help further reduce PM_{2.5} and PM₁₀ emissions in the future by essentially lowering per-vehicle emissions for each of the diesel vehicles.

As indicated in Tables 7 and 8, the proposed projects would result in lower PM_{2.5} and PM₁₀ emissions than the No-Build scenario. This decrease in the PM emissions is the result of increase in vehicle speeds and reduction of congestion anticipated with implementation of the projects.

Traffic volumes along the I-5 corridor are forecasted to increase when compared to the No-Build as summarized in Tables 4 and 5. Redistribution and/or reduction of the overall traveling in the surrounding area, measured in VMTs, however, are expected with the implementation of the projects; and as a result, PM_{2.5} and PM₁₀ re-entrained road dust emission is anticipated to decrease when compared to the No-Build.

The current PM₁₀ monitoring data indicate attainment of the federal 24-hour standard; and a further reduction is anticipated according to the 2003 AQMP. Therefore, it is expected that the proposed projects would not worsen the existing or future conditions.

The historical meteorological and climatic data, monitored PM emissions data and their declining trends, current and projected traffic data, and the Federal regulations and the State's Plan, support the assertion that the project will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS. Activities of this project should, therefore, be considered that they are consistent with the purpose of the SIP and it should be determined that this project conforms to the requirements of the CAA.

Figures

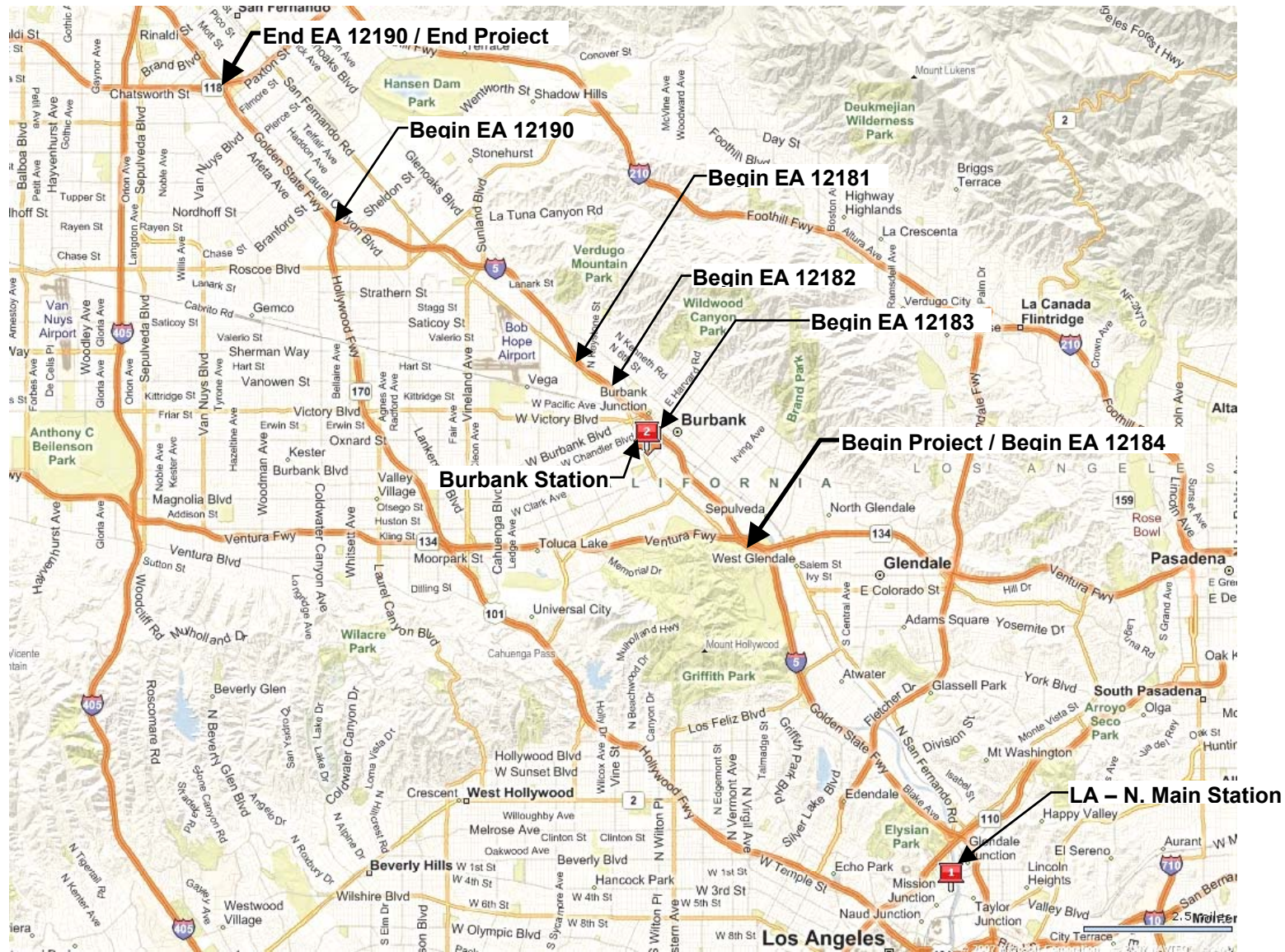


Figure 1 Site Vicinity Map

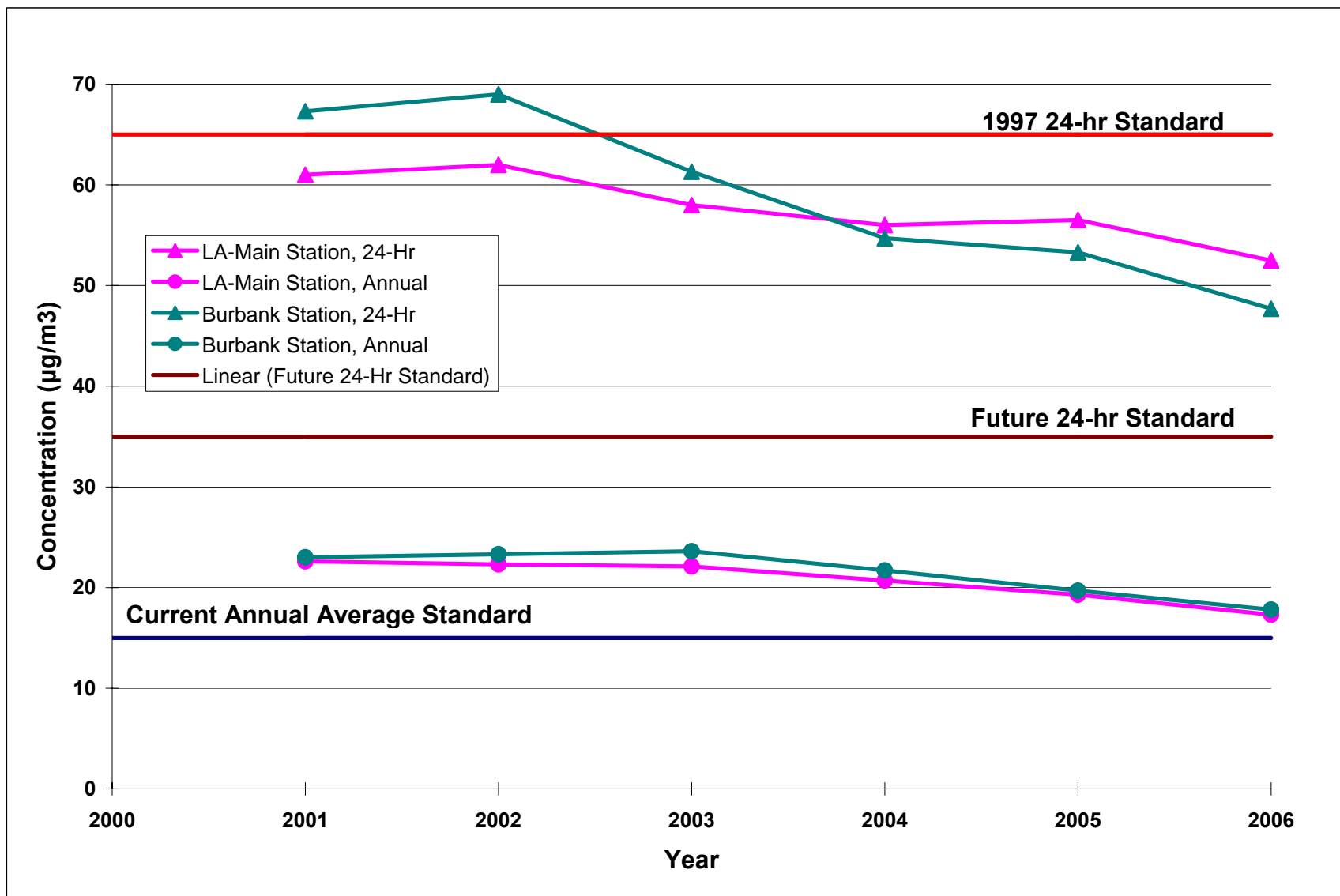


Figure 2 Ambient PM_{2.5} Monitoring Data and Projected Concentrations at Los Angeles - Main St. and Burbank Stations

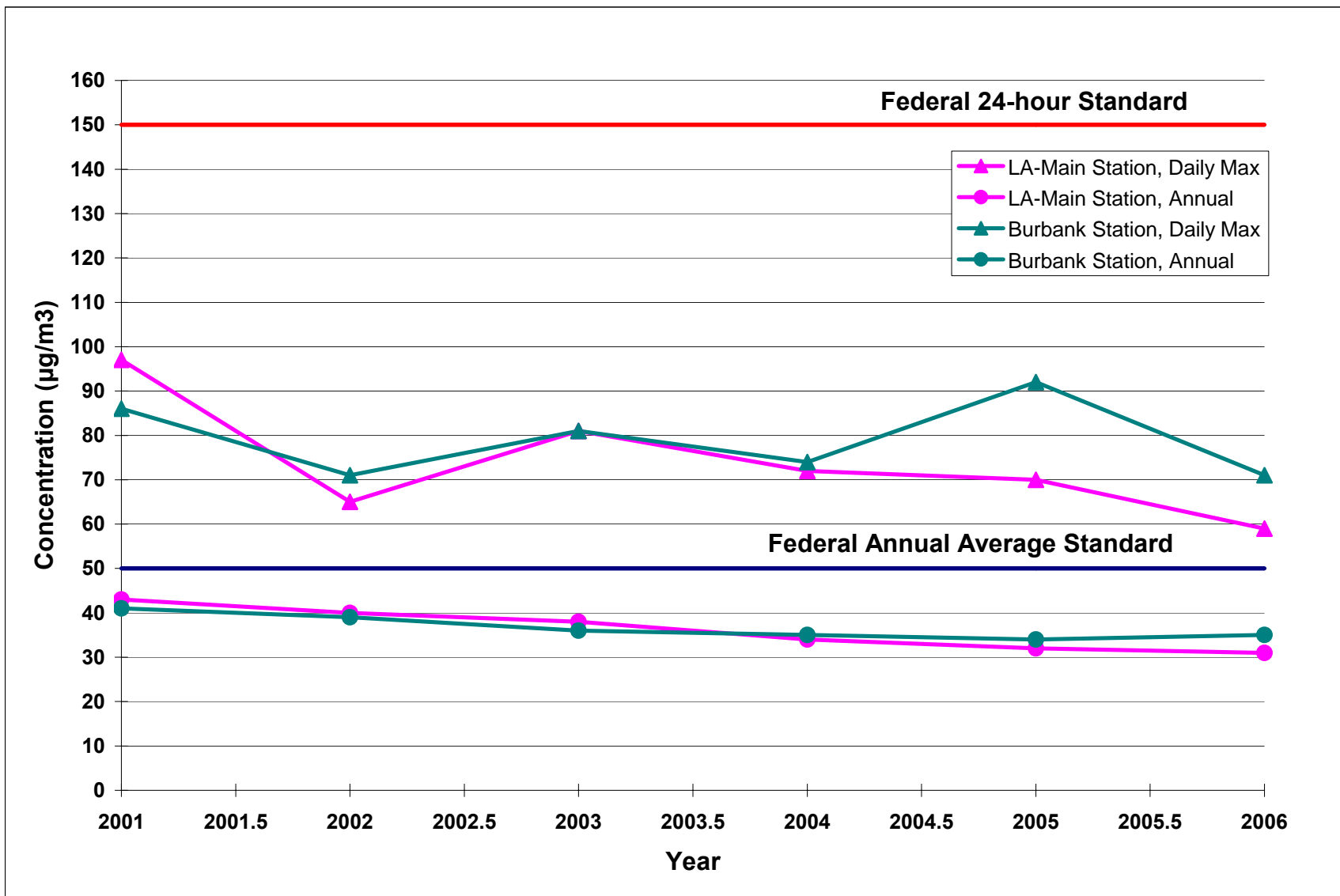


Figure 3 Ambient PM₁₀ Monitoring Data and Projected Concentrations at Los Angeles - Main St. and Burbank Stations

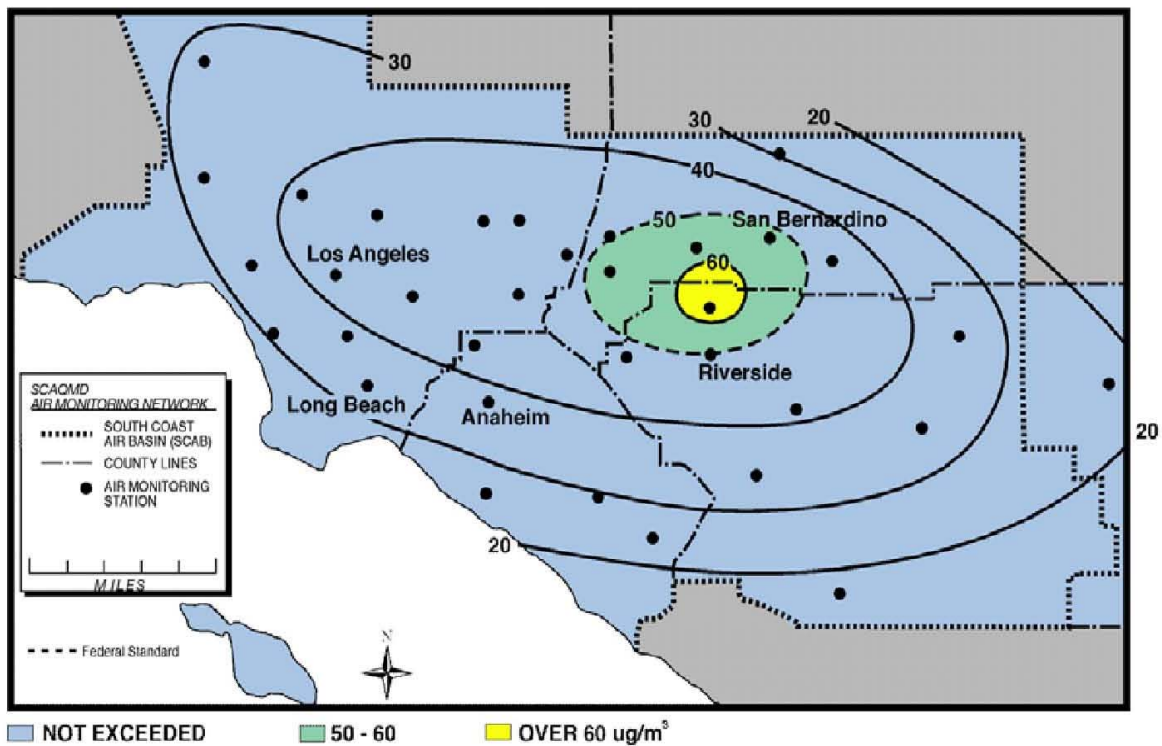


Figure 4 Annual Average PM_{10} Concentrations in 2001 (from 2003 AQMP)

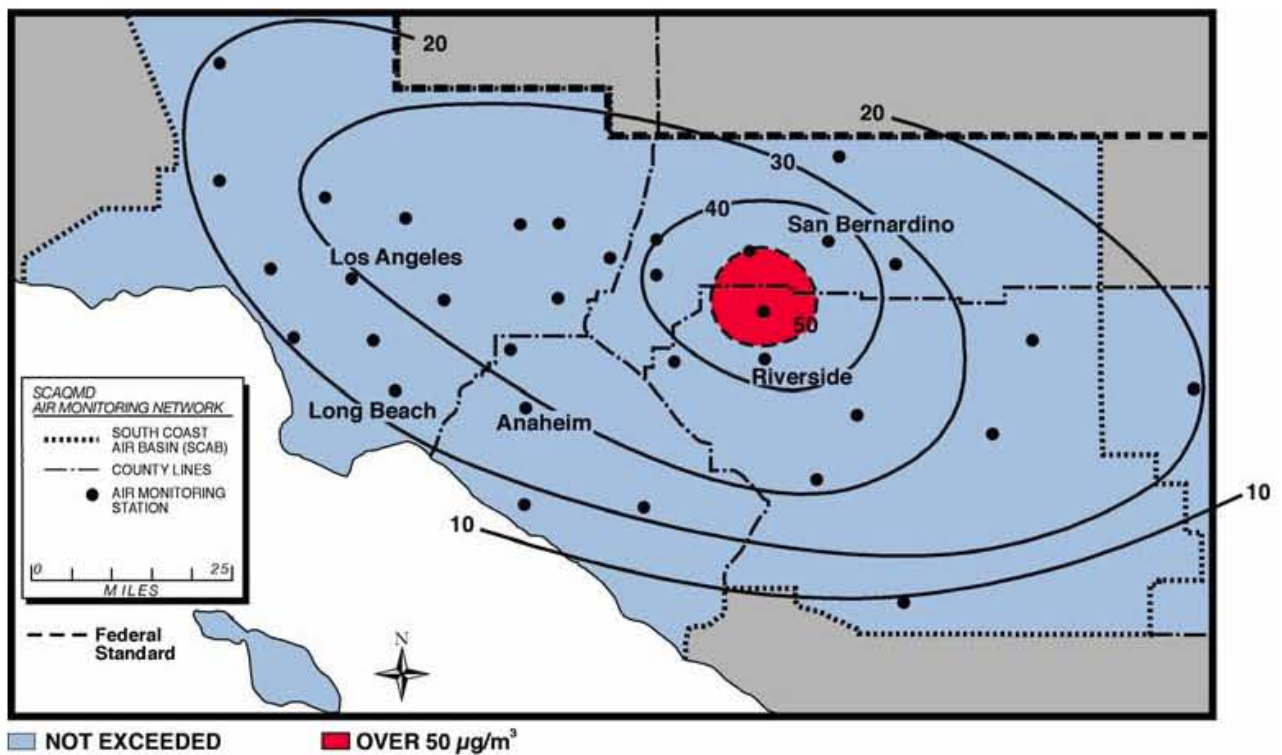


Figure 5 Annual Average PM_{10} Concentrations in 2005 (from 2007 AQMP)

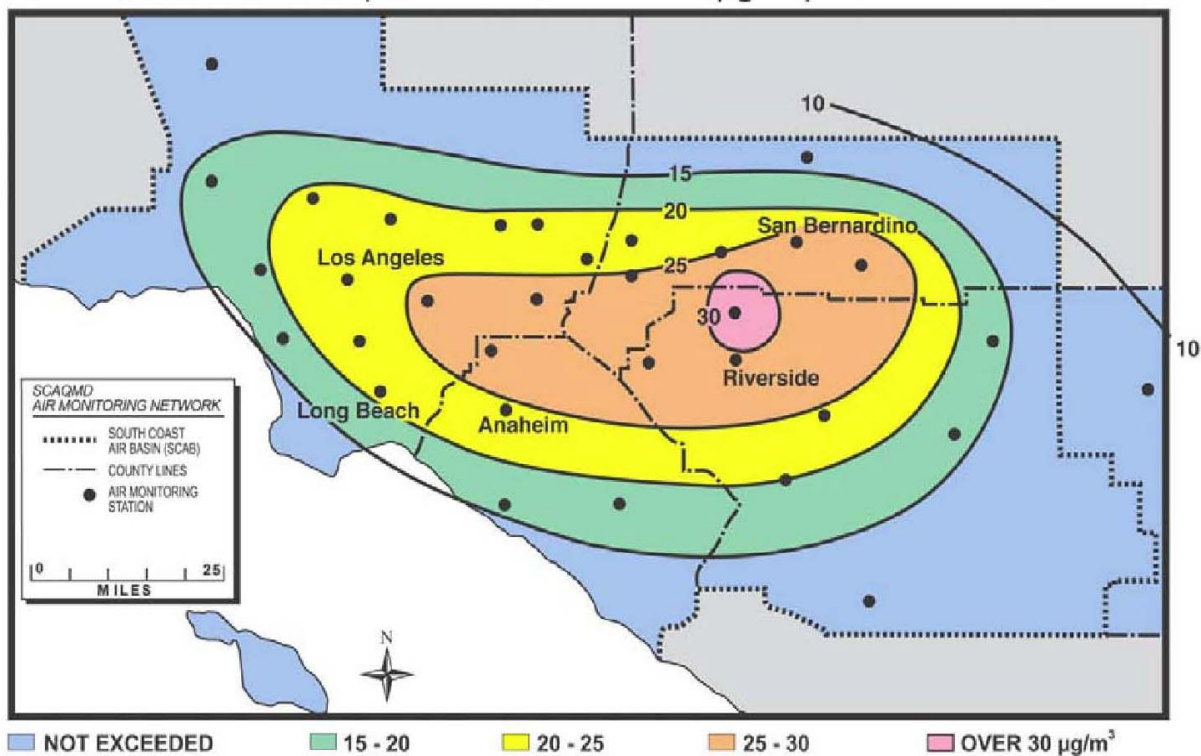


Figure 6 Annual Average PM_{2.5} Concentrations in 2001 (from 2003 AQMP)

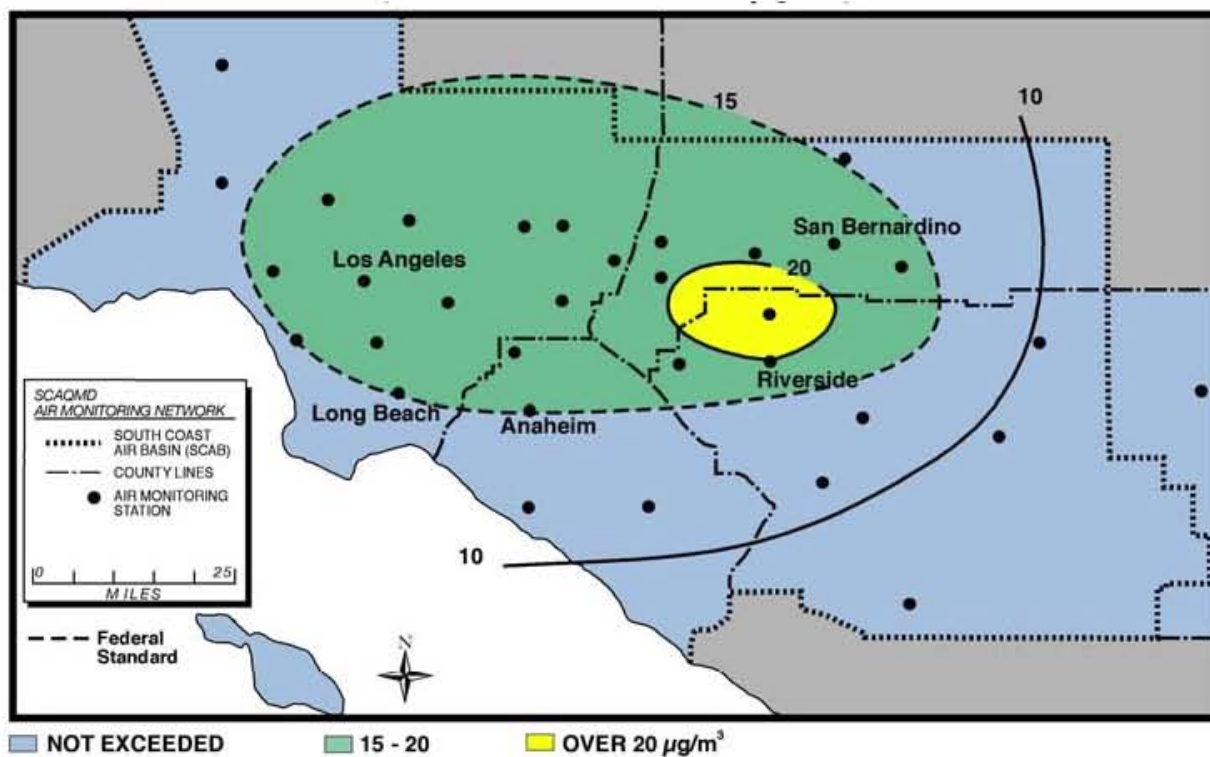


Figure 7 Annual Average PM_{2.5} Concentrations in 2005 (from 2007 AQMP)